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     (FILE 'HOME' ENTERED AT 18:32:35 ON 21 FEB 2007)

     FILE 'MEDLINE' ENTERED AT 18:32:50 ON 21 FEB 2007
L1             0 S (SZALAY OR WILL) /AU
L2             0 S L1 AND (DETECT?(S)(WOUND OR INFLAMMED OR DISEASED) AND (BACTE
L3          8834 S BACTERIA AND (COLONIZE OR COLONIZATION OR INFECT?) AND (DETEC
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L5           826 S L4 AND (WOUND? OR INFLAM? OR ?CARDITIS OR BOWEL(W)DISEASE OR
L6           110 S L5 AND (SALMONELLA OR VIBRIO OR LISTERIA OR ESCHERICHIA)
L7             8 S L6 AND (LUMIN? OR FLUOR? OR MRI)

     FILE 'MEDLINE, BIOSIS, EMBASE, CAPLUS, SCISEARCH, WPIDS' ENTERED AT
     18:36:32 ON 21 FEB 2007
L8            70 S L7 OR L2
L9            61 DUP REM L8 (9 DUPLICATES REMOVED)

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Term: L9 and (detect or detection) same (microorganism or bacteria or bacterium)

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DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; PLUR=YES; OP=OR			
L10	L9 and (detect or detection) same (microorganism or bacteria or bacterium)	24	L10
L9	(szalay or will).in.	5902	L9
L8	(szalay or will).inl	52862	L8
L7	L6 and (detect or detection or visualize) same (wound or disease or condition or inflammation or inflamed)	76	L7
L6	L3 and (administer same (bacteria or bacterium or coli or vibrio or salmonella or listeria or typhirmurium or cholerae or monocytogenes))	750	L6
L5	L4 and (administer same (bacteria or bacterium or microorganism))	0	L5
L4	L3 and (administer same bacteria same (fluorescent or gfp or green adj fluorescent or luciferase))	0	L4
L3	L1 or L2	23173898	L3
DB=PGPB,USPT,USOC; PLUR=YES; OP=OR			
L2	@ad<20020605	3824671	L2
DB=EPAB,JPAB,DWPI; PLUR=YES; OP=OR			
L1	@pd<20020605	19349227	L1

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research tool of molecular biologists. Studies of phages have helped illuminate genetic recombination, nucleic acid replication, and protein synthesis.

For more information on bacteriophage, visit Britannica.com.

Encyclopedia

bacteriophage (băktēr'ēəfāj') , virus that infects bacteria and sometimes destroys them by lysis, or dissolution of the cell. Bacteriophages, or phages, have a head composed of protein, an inner core of nucleic acid—either deoxyribonucleic acid (DNA) or ribonucleic acid (RNA)—and a hollow protein tail. A particular phage can usually infect only one or a few related species of bacteria; for example, coliphages are DNA-containing viruses that infect only the bacterium *Escherichia coli*.

A virus infects a bacterial cell by first attaching to the bacterial cell wall by its tail. In coliphages the tail is a complex protein structure consisting of a hollow contractile sheath, with a plate at the base that contains long protein fibers. The tail fibers fix the base plate to the specific receptor site on the bacterial cell wall, and the tail sheath contracts like a syringe, forcing the DNA that is inside the virus through the cell wall and cell membrane. The entire virus protein coat remains outside the bacterium.

The injected nucleic acid is the viral genetic material; it makes use of the bacterium's chemical energy and biosynthetic machinery to produce viral enzymes, as well as more phage nucleic acid. The viral proteins and nucleic acid molecules within the bacterial host assemble spontaneously into up to a hundred new phage particles. Eventually the bacterium lyses, releasing the particles. Lysis can be readily observed in bacteria growing on a solid medium, where groups of lysed cells appear as clear areas, or plaques.

Some DNA phages, called temperate phages, only lyse a small fraction of bacterial cells; in the remaining majority of the bacteria, the phage DNA becomes integrated into the bacterial chromosome and replicates along with it. In this state, known as lysogeny, the information contained in the viral nucleic acid is not expressed. A lysogenic bacterial culture can be treated with radiation or mutagens, inducing the cells to begin producing viruses and lyse. Lysogenic phages resemble bacterial genetic particles known as episomes. Incorporated phage genes are sometimes the source of the virulence of disease-causing bacteria.

The bacteriophage was discovered independently by the microbiologists F. W. Twort (1915) and Félix d'Hérelle (1917). The phages have been much used in the study of bacterial genetics and cellular control mechanisms largely because the bacterial hosts are so easily grown and infected with phage in the laboratory. Phages were also used in an attempt to destroy bacteria that cause epidemic diseases, but this approach was largely abandoned in the 1940s when antibacterial drugs became available. The possibility of "phage therapy" has recently attracted new interest among medical researchers, however, owing to the increasing threat posed by drug-resistant bacteria. In 2006 the Food and Drug Administration approved the use of bacteriophages that attack strains of *Listeria* as a food additive on ready-to-eat meat products.

Medical

bac·te·ri·o·phage (băk-tēr'ē-ə-fāj')
n.

A virus capbale of infecting and lysing bacterial cells. Also called *phage*.

WordNet

Note: click on a word meaning below to see its connections and related words.

The *noun* bacteriophage has one meaning:

Meaning #1: virus parasitic in bacteria; it uses the bacterium's machinery and energy to produce more phage until the bacterium is destroyed and phage is released to invade surrounding bacteria
Synonym: phage
